CLAIMS

1. A hybrid vehicle driven with power from a motor and an internal combustion engine, where the motor is capable of outputting power to a drive shaft linked with an axle, said hybrid vehicle comprising:

a vehicle speed sensor that measures a vehicle speed;

a target vehicle speed setting module that sets a target vehicle speed for a constant speed drive, in response to a driver's setting action; and

a drive control module that, in the case of no setting the target vehicle speed by said target vehicle speed setting module, sets a vehicle drive command value in response to the driver's accelerator step-on action, refers to a non-linear setting map to set a vehicle driving force corresponding to the vehicle drive command value, and drives and controls the motor and the internal combustion engine to drive said hybrid vehicle with the setting of the vehicle driving force,

while in the case of setting the target vehicle speed by said target vehicle speed setting module, said drive control module setting the vehicle drive command value, based on the vehicle speed measured by said vehicle speed sensor and the target vehicle speed, so as to drive said hybrid vehicle at the target vehicle speed, setting the vehicle driving force corresponding to the vehicle drive command value, in order to have a higher linearity than that of the vehicle driving force

set by a non-linear portion of the non-linear setting map with respect to at least part of the vehicle drive command value equivalent to the non-linear portion, and driving and controlling the motor and the internal combustion engine to drive said hybrid vehicle with the setting of the vehicle driving force.

2. A hybrid vehicle in accordance with claim 1, wherein the non-linear setting map has a negative zone, a dead zone kept substantially equal to 0, and a positive zone against the vehicle drive command value, and

said drive control module sets the vehicle driving force according to the non-linear setting map and the vehicle drive command value, which is not less than a preset opening included in the dead zone of the non-linear setting map, in response to setting of the target vehicle speed, while correcting the vehicle drive command value, which is less than the preset opening, to make an area to the preset opening equivalent to the negative zone and setting the vehicle driving force according to the non-linear setting map and the corrected vehicle drive command value.

3. A hybrid vehicle in accordance with claim 2, wherein the non-linear setting map linearly increases the vehicle driving force with an increase in vehicle drive command value in the negative zone and in the positive zone.

4. A hybrid vehicle in accordance with claim 1, wherein said drive control module uses a linear setting map, which has

a higher linearity than the non-linear setting map, to set the vehicle driving force corresponding to the vehicle drive command value, in response to setting of the target vehicle speed.

5. A hybrid vehicle in accordance with claim 4, wherein the non-linear setting map has a negative zone, a dead zone kept substantially equal to 0, and a positive zone against the vehicle drive command value, and

the linear setting map has a negative zone which has a higher fraction, a dead zone which is kept substantially equal to 0 and has a lower fraction, compared with the fractions of the negative zone and the dead zone in the non-linear setting map, and a positive zone.

6. A hybrid vehicle in accordance with claim 5, wherein the non-linear setting map and the linear setting map linearly increase the vehicle driving force with an increase in vehicle drive command value in the negative zone and in the positive zone.

7. A hybrid vehicle in accordance with any one of claims 1 through 6, said hybrid vehicle further comprising:

an electric power-mechanical power input-output module that is linked with an output shaft of the internal combustion engine and the drive shaft and outputs at least part of the power from the internal combustion engine to the drive shaft through inputs and outputs of electric power and mechanical power.

8. A hybrid vehicle in accordance with claim 7, wherein said electric power-mechanical power input-output module comprises:

a three shaft-type power input-output assembly that is linked with three shafts, that is, the output shaft of the internal combustion engine, the drive shaft, and a third shaft and inputs and outputs power to a residual shaft, based on powers input from and output to two shafts among the three shafts; and

a generator that inputs and outputs power from and to the third shaft.

9. A hybrid vehicle in accordance with claim 7, wherein said electric power-mechanical power input-output module comprises a pair-rotor motor that has a first rotor linked with the output shaft of the internal combustion engine and a second rotor linked with the drive shaft and outputs at least part of the power from the internal combustion engine to the drive shaft through input and output of electric power by electromagnetic interaction between the first rotor and the second rotor.

10. A hybrid vehicle control method of controlling a hybrid vehicle, which is driven with power from a motor and an internal combustion engine, where the motor is capable of outputting power to a drive shaft linked with an axle, said hybrid vehicle control method comprising the steps of:

(a) setting a vehicle drive command value, in response

to a driver's accelerator step-on action;

(b) setting a target vehicle speed for a constant speed drive in response to the driver's setting action and setting the vehicle drive command value to drive said hybrid vehicle at the setting of the target vehicle speed;

(c) referring to a non-linear setting map to set a vehicle driving force corresponding to the vehicle drive command value, which is set in said step (a), while setting the vehicle driving force corresponding to the vehicle drive command value, which is set in said step (b), to have a higher linearity with respect to part of the vehicle drive command value corresponding to a non-linear portion of the non-linear setting map; and

(d) driving and controlling the motor and the internal combustion engine to drive said hybrid vehicle with the vehicle driving force set in said step (c).

11. A hybrid vehicle control method in accordance with claim 10, wherein the non-linear setting map has a negative zone, a dead zone kept substantially equal to 0, and a positive zone against the vehicle drive command value, and

when the vehicle drive command value is set in said step (b), said step (c) sets the vehicle driving force according to the non-linear setting map and the vehicle drive command value, which is not less than a preset opening included in the dead zone of the non-linear setting map, in response to setting of the target vehicle speed, while correcting the vehicle drive command value, which is less than the preset opening, to make

an area to the preset opening equivalent to the negative zone and setting the vehicle driving force according to the non-linear setting map and the corrected vehicle drive command value.

12. A hybrid vehicle control method in accordance with claim 10, wherein said step (c) uses a linear setting map, which has a higher linearity than the non-linear setting map, to set the vehicle driving force corresponding to the vehicle drive command value, when the vehicle drive command value is set in said step (b).

13. A hybrid vehicle control method in accordance with claim 12, wherein the non-linear setting map has a negative zone, a dead zone kept substantially equal to 0, and a positive zone against the vehicle drive command value, and

the linear setting map has a negative zone which has a higher fraction , a dead zone which is kept substantially equal to 0 and has a lower fraction, compared with the fractions of the negative zone and the dead zone in the non-linear setting map, and a positive zone.